

**AN EVALUATION OF FLORIDA'S  
PRESCRIBED BURNER CERTIFICATION PROGRAM**

**EXECUTIVE PLANNING**

**By: C. Bruce Hill, Jr.  
District Manager  
Florida Division of Forestry  
Jacksonville, Florida**

**An applied research project submitted to the National Fire Academy as part of the  
Executive Fire Officer Program**

**October 30, 2000**

## **ABSTRACT:**

The State of Florida's prescribed burner certification program includes a Basic Interagency Prescribed Fire Course which teaches persons with little or no fire experience how to plan and conduct prescribed burning operations. Perceptions among Division of Forestry field managers are that the course is producing a growing number of certified prescribed burners who lack the practical experience necessary to conduct fires in a safe and efficient manner. This lack of experience increases the potential for escaped fires and smoke management problems which could threaten the continued use of prescribed fire in Florida. The purpose of this research was to determine if the level of course graduates burning experience meets professionally accepted training and experience standards.

Evaluative and historical research were used to answer the following questions.

1. What is the current level of prescribed burning experience of course graduates?
2. Is this level of experience adequate for conducting prescribed burns in a safe and efficient manner?
3. What additional training and experience should be required of course graduates in order to become Certified Burners?

A review of published literature was conducted to gather information on prescribed burning training requirements for various state and federal agencies whose employees carry out prescribed burning operations. In addition, graduates of the Basic Interagency Prescribed Fire Course were surveyed to gather information regarding their burning experience and training.

Seventy-three of 175 surveys were returned and evaluated. Thirty-seven percent of survey participants reported having experience on ten or less prescribed fires. Twelve participants had experience on 11 to 20 burns and 34 had experience on more than 20 burns. Only eight persons having less than 20 burns were preparing burn prescriptions. Only 27 (37%) participants had other training in addition to the Basic Interagency Prescribed Fire Course.

Recommendations include surveying the remainder of 1995, 1996 and 1997 course graduates for more reliable information, including completion of performance based training requirements prior to certification and requiring certification as a prerequisite for conducting prescribed burning in Florida.

## **TABLE OF CONTENTS**

<b><u>TITLE</u></b>	<b><u>PAGE</u></b>
Abstract.....	ii
Table of Contents.....	iv
Introduction.....	1
Background and Significance.....	3
Literature Review.....	5
Procedures.....	12
Results.....	14
Discussion.....	18
Recommendations.....	20
References.....	21
Appendix:     A.....	23

### List of Tables:

Table 1, Distribution of Survey Participants by Organization.....	15
Table 2, Summary of Survey Participants Burning Experience.....	17

## **INTRODUCTION:**

The use of prescribed fire has long been recognized as an effective wildland fire prevention and natural resource management tool. Prescribed fire is used by wildland fire managers and forest landowners to reduce accumulations of vegetation that serves as fuel for destructive wildland fires.

Florida's rapidly increasing population is making it difficult to conduct prescribed fire operations. There are few places in the state where one can burn without impacting people with smoke that results from these fires. These negative impacts are threatening the continued use of this valuable fire prevention and land management tool.

In 1987 the Florida Department of Agriculture and Consumer Services, Division of Forestry, took steps to improve the quality of prescribed burning by implementing a voluntary certification process for fire and resource managers who practice prescribed burning on their wildlands. The Certified Burner Program included an eight hour training course on weather, smoke management, and planning skills for fire managers who were considered experienced prescribed burners.

In 1990 the Division of Forestry expanded this training program to include the Basic Inter-agency Prescribed Fire Course which is intended for persons who wish to learn how to burn. Graduates of this course are eligible for certification upon demonstrating a minimum level of proficiency. However, proficiency standards have never been clearly defined.

The problem is a perception among field managers that there is a growing number of Basic Interagency Prescribed Fire graduates who lack the practical experience needed to safely conduct prescribed burning operations. The consequences of this lack of experience are an increased potential for escaped fires, smoke management problems and loss of life and property that result from poorly planned and executed prescribed fires.

The purpose of this research is to determine the level of practical experience of graduates of the Basic Interagency Prescribed Fire Course.

The study uses evaluative and historical research and seeks to answer the following questions:

1. What is the current level of prescribed burning experience of course graduates?
2. Is this level of experience adequate for conducting prescribed burns in a safe and efficient manner?
3. What additional training and experience should be required of course graduates in order to become Certified Burners?

The primary method used to conduct this research was surveying a statistically valid sample of course graduates in order to gather qualitative and quantitative information regarding their experience as prescribed burners. The research also included a literature review of information relating to nationally recognized training requirements for prescribed burning.

## **BACKGROUND AND SIGNIFICANCE:**

The National Fire Academy's Executive Planning Course requires each student to conduct an applied research project within six months of completing the class. The topic of this research is An Evaluation of Florida's Prescribed Burner Certification Program.

The research is important to the agency for the following reasons:

1. It identifies the level of burning experience for course graduates.
2. It determines whether or not that experience is adequate for conducting safe prescribed burning operations.
3. It identifies additional training and experience requirements that would further improve the quality of prescribed burning.

The research is related to Module 8, "Evaluation", of the Executive Planning Course. The research deals specifically with determining whether or not the Basic Interagency Prescribed Fire Course is meeting the needs of both government agencies and private land managers who depend on the use of prescribed burning as a fire prevention and natural resource management tool.

The concern by field managers that graduates of the Basic Interagency Prescribed Fire Course lack experience to effectively manage prescribed burning operations is based largely on personal observations, subjective feelings and the fact that there are no minimum requirements for taking the course. No attempts have been made to measure the actual burning experience of course graduates.

Determining the true level of burning experience would help confirm or dispute these perceptions.

National training and experience standards for prescribed burning have been developed by the National Wildfire Coordinating Group. This research will determine if course graduates are meeting these standards prior to certification.



## **LITERATURE REVIEW:**

A review of existing literature found a large volume of published information on the use of prescribed fire as a fire prevention and natural resource management tool. However, information specific to training programs and requirements was limited. Information for this research was obtained from the Florida Department of Agriculture and Consumer Services, Division of Forestry's State Headquarters in Tallahassee, Florida, the U.S. Forest Service National Forests in Florida, the Florida Department of Environmental Protection and The Nature Conservancy.

Prescribed fire is defined as fire applied in a knowledgeable manner to forest fuels on a specific land under selected weather conditions to accomplish predetermined, well-defined management objectives (Florida Department of Agriculture and Consumer Services, n.d.)

In its book, Guide to Prescribed Burning in the South, The National Wildfire Coordinating Group [NWCG] (1989), states that prescribed fire is a complex tool and should only be used by those trained in its use. Properly stated objectives and detailed planning are needed for every area where fire is planned. Lack of training and inattention to these details can result in property damage from escaped fires and excessive smoke which could lead to serious liability problems for the burner. The future of prescribed fire depends on public acceptance. This acceptance will be dependent on the wise use of fire. The Nature Conservancy (1995) states that prescribed burners must be trained and agencies must set standards for individuals conducting burns.

Brenner and Wade (1992) predict that prescribed burn managers will have to become even more skillful in carrying out prescribed fire operations and must place special emphasis on educating the public concerning the social and environmental benefits derived from its continued use.

In reviewing the National Fire Policy, Wakimoto (1990) states that many fire managers responsible for managing prescribed natural fires received only classroom training through fire management training courses. They had little actual experience with on the ground fire operations. Additional training needs were addressed by allowing these managers to participate on regional or national fire teams. This has proven to be a significant problem when dealing with infrequent, high intensity prescribed natural fires.

Prescribed natural fires are defined as those naturally caused fires that are allowed to burn under predetermined conditions to achieve preplanned land or resource management objectives (U.S. Forest Service, 1991).

The NWCG (1995) published the Wildland Fire Qualification System Guide which provides guidance to participating state and federal agencies for establishing standards for personnel working on all fire operations. The guide includes a subsystem for prescribed fires.

The NWCG prescribed fire qualifications system is performance based as opposed to previous programs which were based on successful completion of structured classroom training .

NWCG Qualifications require real performance on critical burn position skills rather than on classroom training and examinations. Training requirements now include a combination of classroom training and completion of a series of position task books which includes critical tasks required for eleven prescribed burning positions. Recommendation for certification is not made until both classroom and field components have been completed.

The NWCG guidelines were established for federal and state fire agencies who participate on joint, interagency fire operations. However, at least one private, non-profit organization, The Nature Conservancy, is including some NWCG standards as part of its prescribed fire training requirements. These standards are of particular interest to The Nature Conservancy in those situations when the organization cooperates with NWCG agencies on prescribed burning operations (The Nature Conservancy, 1996).

As an example, The Nature Conservancy requires personnel to complete the NWCG Intermediate Wildland Fire Behavior and Introduction to Wildland Fire Behavior Calculations Course as a prerequisite to taking the organization's Workshop on Ecological Burning Course. They also recommend that fire leaders take the NWCG Advanced Wildland Fire Calculations, Smoke Management, and Engine Boss courses (The Nature Conservancy, 1996).

The U.S. Forest Service has established prescribed fire standards on both national and regional levels. National standards are consistent with the NWCG Prescribed Fire Qualification Subsystem for each burn team position. Regional standards are required in addition to national standards and include

performance levels (expert level, working level, and basic level) that are based on demonstrated burning skills. National and regional training standards are, like NWCG standards, performance based rather than classroom training based qualifications (U.S. Forest Service, 1991).

In an effort to enhance and speed up development of prescribed burning skills on a national level, the U.S. Forest Service, National Forests in Florida proposed (and later implemented) development of a National Prescribed Fire Training Center that would expand prescribed fire training opportunities to Forest Service employees from across the country. The program includes a thirty day assignment in Florida which consists of classroom training and five to fifteen field burning days on federal, state and other public lands. An incentive for trainees participating in the program is the opportunity to complete NWCG prescribed fire position task books. Success of the program depends heavily on cooperation from state wildland fire and resource agencies (U.S. Forest Service, 1997)

As a means of addressing public concerns regarding the use of prescribed fire and protecting its continued use, several states have passed legislation which recognizes the use of prescribed fire as a fire prevention and resource management tool. Each of these laws contain training requirements which are intended to produce better quality burning that reduces the negative impacts of smoke from prescribed fires (Brenner and Wade, 1992).

Florida's 1990 Prescribed Burning Law includes a certification program which requires

successful completion of an eight hour course that emphasizes planning, weather factors and open burning laws. Burners must pass this course in order to become certified and to receive protection from liable suits. Students must have experience on at least three burns prior to taking the course. However, the law does not require certification in order to burn (Brenner and Wade, 1992).

In 1990 the Florida Division of Forestry, in cooperation with seven other fire management and resource management agencies, developed the Basic Interagency Prescribed Fire Course. This forty hour course includes classroom training and field burning exercises. The course is intended for individuals with little or no experience at prescribed burning (Florida Department of Agriculture and Consumer Services, n.d.). Class size is limited to thirty students and applicants far exceed the number of available slots. The backlog of applicants is expected to continue to rise as more and more people become aware of the protection from liability which the prescribed burning law affords to individuals who successfully become certified burners (Brenner and Wade, 1992).

In March 1993, the State of Mississippi passed similar but stronger legislation that requires at least one certified burn manager on any prescribed fire on both private and public lands. The requirements for certification include successful completion of a prescribed burning short course offered through Mississippi State University or completing equivalent certification course work in another state (Eshree, 1993).

Many government agencies and private organizations have gone beyond training requirements of the above mentioned certification programs and have increased training requirements to include course work in fire behavior, fire line safety, equipment operation, etc.

The Florida Department of Environmental Protection (1995) established personal training standards (course work and fire experience) that must be met prior to participating in prescribed burning operations. Standards are listed by position. For example, the agency's training requirements for the Line Boss position who supervises ignition, line holding and weather monitoring must have completed the following courses: Standards for Survival, Fire Fighters Basic Training, Introduction to Fire Behavior and the Basic Interagency Prescribed Fire Course. In addition, the Line Boss must be a certified burner and have a demonstrated knowledge of equipment and have experience on at least ten prescribed burns.

The St. Johns River Water Management District (n.d.) requires all burn supervisors to be certified burners and to have successfully completed the Florida Fire Behavior and Intermediate Fire Behavior training courses. In addition, Standards for Survival, including fire shelter training, is required of all fire personnel prior to participating in prescribed fire activities.

The Florida Division of Forestry's Policy and Procedure Manual (1997) states that all prescribed burn supervisors must complete a minimum of training to include the Basic Interagency Prescribed Burners Course, Florida Fire Behavior and Standards for Survival.

Additional certification requirements have been recommended by the Division of Forestry in order to ensure that all burn managers, public and private, have the training to conduct safe and effective prescribed burns. If adopted, these new requirements would include completion of the Basic Interagency Prescribed Fire Course, completion of a task book containing fourteen practical prescribed burning exercises and submitting an application for certification (Department of Agriculture and Consumer Services, 1997).

A single task book was chosen over NWCG Task Books because of the tremendous volume of burning in the state and the variety of backgrounds of public and private burners (U.S. Forest Service, 1997).

The North Florida Prescribed Fire Council (1993) conducted a prescribed fire training survey to determine training accomplishments of fire managers in a thirty-three county North Florida region. Thirty eight respondents reported a total of 610 individuals involved in prescribed burning activities. Training of those individuals was broken down as follows: State Certified Burner Course - 203, Interagency Basic Prescribed Fire Course - 139, Florida Fire Behavior - 76, Intermediate Fire Behavior - 90, and Miscellaneous training - 73. Fire behavior, smoke management, and fire effects were the most requested training by those responding to the survey.

## **PROCEDURES:**

One hundred seventy-five of 328 graduates from the 1995, 1996 and 1997 Basic Interagency Prescribed Fire Classes were asked to complete a one page questionnaire (Appendix A) regarding their level of experience with prescribed burning. The number of graduates surveyed was determined from sample size guidelines provided in the National Fire Academy's Executive Development Course Workbook. The eight question survey was divided into categories which included demographic information, certification and actual prescribed burning experience since graduating from the course.

Information requested in the survey was used to determine whether or not course graduates had the experience necessary to plan and carry out safe and effective prescribed burning operations.

Item 1. This item was used to determine what agency or organization the student worked for and how long they worked there.

Item 2. This item was used to determine the students business and/or occupation.

Item 3. This item was used to determine time elapsed since the course was taken.

Item 4. The purpose of this item was to determine if the student had been certified. The certification number provided by the student was verified with Division of Forestry certification records.



Item 5. This item was used to determine whether or not the student is responsible for preparing burn prescriptions.

Item 6. The purpose of this item was to determine the number of prescribed fires in which the student has actually participated.

Item 7. This item identifies the type(s) of prescribed burning in which the student has been involved in.

Item 8. This item was used to determine any additional training the student has completed in addition to the Basic Interagency Prescribed Fire Course.

It is assumed that knowledgeable and responsible individuals answered the survey and did so honestly.

The survey was conducted by systematically sampling 175 of 328 course graduates who completed the course in years 1995, 1996 and 1997. These years were chosen because they represent course graduates with the least amount of experience. Students graduating prior to 1995 have most likely developed competent burning skills as a result of on the job training. Names of students were chosen from a list of course attendees provided by Hillsborough Community College in Tampa, Florida which administers the course for the Division of Forestry. Students from all geographic areas of the state were included in the survey. All returned surveys were used to tabulate the results.

No calculations were made to determine the margins of error in the survey results.

## **RESULTS:**

Of the 175 surveys mailed, 73 (42%) were completed and returned by the March 16, 1998 deadline. An additional 21 (12%) surveys were returned because respondents had moved from addresses provided by Hillsborough Community College. Responses to the surveys are summarized as follows:

All survey participants reported working for fire control and natural resource management organizations that use prescribed fire. Eighteen had fire suppression responsibilities. Fifty-two (71%) survey participants were employed by State of Florida resource management agencies. Five were employed by county governments, five were employed by private consulting firms, four were private landowners, three were employed by the military one by the federal government and three were classified as other. Length of service ranged from 1 to 34 years with an average length of service being 8.5 years. A summary of employment data is shown in Table One.

In Question Three all survey participants reported being graduates of the 1995, 1996 or 1997 Basic Inter Agency Prescribed Fire Course classes. Certification numbers provided on surveys support respondents answers.

Thirty-four (46%) respondents stated in Question Four that they were certified burners while 39 (53%) stated that they had not been certified. Forty-five respondents stated in Question Five that they were responsible for preparing written burn prescriptions. Of those, 14 stated that they were not certified burners.

Table 1.  
Distribution of Survey Participants by Organization

<b>Organization</b>	<b>No. Participants</b>
Florida Division of Forestry	18
Florida Department of Environmental Protection	17
Florida Game and Freshwater Fish Commission	13
Local Government	5
Private Consultants	5
Private Landowners	4
Water Management District	4
Military	3
National Park Service	1
Other	3

In Question Six, 27 (37%) respondents reported having participated on ten or less prescribed burns. Nine of these reported being responsible for preparing burn prescriptions and five were not certified burners. Twelve respondents reported having experience on 11-20 burns. Six of those prepared burn prescriptions. Three were not certified burners. A total of eight persons having experience on twenty burns or less reported that they were not certified burners. Thirty-four (46%) respondents reported having experience on more than twenty prescribed fires. A summary of respondents prescribed burning experience is shown in Table 2.

Only 27 (37%) of the respondents reported having other fire related training in addition to the Basic Inter Agency Prescribed Fire Course. Training courses listed by participants included introductory, intermediate and advanced course work in fire behavior, smoke management, fire line safety, ecological burning and equipment operations training. Twenty-two (30%) respondents reported having no additional fire training and 25 (34%) respondents did not answer the question. There was no correlation between organization and the level of prescribed burning related training received by its employees.

Table 2.  
Summary of Survey Participants Burning Experience

No. Fires	No. Persons	No. Preparing	
		No. Certified	Prescriptions
0	1	0	0
1-5	14	1	3
6-10	12	5	7
11-20	12	4	6
20+	34	24	29
<hr/>			
<b>73</b>	<b>34</b>	<b>45</b>	<b>Total</b>

## **DISCUSSION:**

The literature review makes a strong case that continuous training is a critical element of any prescribed burning program and that prescribed burners will have to become even more skillful in the use of prescribed fire in order to ensure its continued use as a fire prevention and resource management tool.

Survey results indicate, however that continued training beyond the Basic Interagency Prescribed Fire Course is lacking in most participating organizations. A few participants ( 27 out of 73 returned surveys) are getting considerable training while the majority are getting nothing beyond the basic course. It would be interesting to compare training accomplishments between this group and other course graduates who completed the course since 1990 to determine if this trend exists throughout the entire population of course graduates.

Survey results provide an indication that the perceived problem of many course graduates lacking necessary experience to manage prescribed burning operations may not be a significant issue. Only nine graduates having experience on ten or fewer prescribed burns were preparing burn prescriptions and were likely to be supervising burn operations. Only five of those were not certified burners. This is not a significant portion of the population however, it does raise interesting questions.

Do persons with less than ten prescribed fires have enough practical burning experience to become certified burners, prepare burn prescriptions and serve as burn managers? The author thinks not and

supports the development and requirement of passing prescribed burning performance standards which includes experience on a minimum number of fires prior to filling these roles. This applies to burners in both the public and private sector. An additional survey question which would have helped resolve this issue is; do you act as burn manager on prescribed burning operations for your organization?

An interesting observation was the significant number (21) of surveys that were returned by the postal service because graduates had moved and forwarding addresses had expired. This leads one to question if these people are still involved in prescribed burning activities. If this is the case then it helps support the observation that the perceived problem is being over stated. This observation becomes even more significant when one begins to consider the remaining population that is no longer involved in prescribed burning.

Finally, it was surprising to discover in the literature review that Florida has less stringent training requirements for prescribed burners than the state of Mississippi. One would think that Florida, with a larger, growing population and increasing number of smoke sensitive areas would have stricter burning requirements than a mostly rural state like Mississippi. However, Mississippi requires anyone managing prescribed burning operations to be a certified burner. Florida, on the other hand only requires burn managers to be certified in order to receive liability protection from lawsuits. Certification is not a prerequisite for prescribed burning in the State of Florida.

## **RECOMMENDATIONS:**

The research included enough mailed surveys to produce a statistically valid sample of course graduates. However, the response, while considered good, did not generate enough replies to produce statistically valid answers. The results produced good information as far as trends go but more responses are needed in order to produce accurate answers to the survey questions. It is recommended that the remainder of 1995, 1996 and 1997 course graduates be surveyed in order to gain an accurate assessment of burn experience, training trends and the number of graduates who are no longer involved in prescribed burning.

The movement towards performance based training through the use of task books is a practical means of determining competency prior to certification. It is recommended that the Division of Forestry continue its efforts to produce and implement a task book requirement for all persons applying for burn certification status. The task book should require experience on at least twenty burns prior to certification. It is further recommended that anyone wishing to prescribe burn in Florida must be complete certification training in order to burn.



## REFERENCES

American Pulpwood Association, Inc. (1993 February). Florida's 1990 prescribed burning act.

Technical Release 93-R-13. 1-2.

Brenner, J., Wade, D. (1992). Florida's 1990 prescribed burning act. Journal of Forestry, 22-25.

Eshree, Jr., W.D., (1993 September/October). Prescribed burning and the law. Forest Farmer, 20-26.

Federal Emergency Management Agency, United States Fire Administration, National Fire Academy. (1993). Executive development student manual. Emmitsburg, Maryland. Author.

Florida Department of Agriculture and Consumer Services. (n.d.). Basic interagency prescribed fire course instructors guide. Tallahassee, Florida. Author.

Florida Department of Agriculture and Consumer Services. (1997). Division of forestry prescribed burning working team recommendations. Tallahassee, Florida. Author.

Florida Department of Agriculture and Consumer Services. (1997). Division of forestry policy and procedure manual. Tallahassee, Florida. Author.

Florida Department of Environmental Protection. (1995). Division of recreation and parks policy and procedure manual. Tallahassee, Florida. Author.

National Wildfire Coordinating Group. (1989 February). A guide for prescribed fire in the south.

NEFS Publication No. 2108. Boise, Id.

National Wildfire Coordinating Group. (1995). Wildland fire qualification subsystem guide. NEFS

Publication No. 2479. Boise Id.

North Florida Prescribed Fire Council Newsletter. (n.d.). Prescribed fire managers survey.

Tallahassee, Florida. Author.

St. Johns River Water Management District. (n.d.) Prescribed burning guidelines. Palatka, Florida.

Author.

The Nature Conservancy. (1996 Summer).Are we meeting national prescribed fire standards.

Rx Fire Notes. 1-3.

U.S. Forest Service. (1991). Forest service manual. Washington D.C. Author.

U.S. Forest Service, National Forests in Florida. (1997). Request to initiate proposed florida

interagency rx fire center. Tallahassee, Florida. Author.

Wakimoto, R.H. (1990 October). National fire management policy. Journal of Forestry. 22-25.

## **APPENDIX A**

## INTERAGENCY BASIC PRESCRIBED FIRE QUESTIONNAIRE

1. Employed by:  
  
How Long?
2. Type of Business:
3. Date course taken (Month/Year):
4. Are you a certified burner? Yes\_\_\_\_\_ No  
Certified Number:
5. Do you prepare written burn prescriptions? Yes\_\_\_\_\_ No
6. How many prescribed burns have you actively participated in?  
A. 0 B. 1-5 C. 6-10 D. 11-20 E. More than 20
7. What type of burns do you participate in? Circle all that apply.  
  
Silvicultural Wildlife Management Ecological  
Range Management Other
8. What other formal prescribed fire training courses have you taken?

---